SWRHL-38r

OFF-SITE SURVEILLANCE ACTIVITIES OF THE SOUTHWESTERN RADIOLOGICAL HEALTH LABORATORY
from July through December 1966

by the
Southwestern Radiological Health Laboratory

Department of Health, Education, and Welfare
Public Health Service
National Center for Radiological Health

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DTIE
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for the
U. S. ATOMIC ENERGY COMMISSION

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ABSTRACT

The Southwestern Radiological Health Laboratory of the Public Health Service performed off-site radiological surveillance for ten announced events during the period from July through December 1966. This surveillance is conducted in the public areas surrounding the Nevada Test Site under a Memorandum of Understanding with the U. S. Atomic Energy Commission. No reactor experiments were conducted during this time.

During the six-months period there was one event, Derringer, conducted on September 12, 1966, which released radioactive effluent that was detected only in an unpopulated location off the Nevada Test Site. Also during this period an underground test, Project Sterling, was conducted in Mississippi on December 3, 1966 as part of the Vela Uniform program. No radioactivity attributable to this detonation was detected in the off-site area.

Analysis of all sampling and surveillance performed during the six-month period indicates that the safety criteria established by the Atomic Energy Commission for the off-site population were not exceeded.

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I. INTRODUCTION

During the period July through December 1966, ten announced underground nuclear tests were conducted by the U. S. Atomic Energy Commission at their Nevada Test Site as a part of Operation Latchkey. In addition, Project Sterling was conducted underground in Mississippi as part of the Vela Uniform program. The Public Health Service conducted a program of radiological environmental surveillance of the off-site area for the Safety Evaluation Division of the AEC's Nevada Operations Office under a Memorandum of Understanding between the U. S. Atomic Energy Commission (AEC) and the Public Health Service (PHS).

The Southwestern Radiological Health Laboratory (SWRHL) conducted this program of radiological monitoring and environmental sampling in the off-site areas surrounding the restricted area enclosed within the Nevada Test Site, NRDS, and the Nellis Air Force Range. The overall complex of the Nevada Test Site (NTS) and the Nellis Air Force Range includes the Nuclear Rocket Development Station (NRDS) and the Tonopah Test Range (TTR) and for simplicity will be called the test range complex throughout this report. Although routine sampling and monitoring was done within a 300-mile radius around the test range complex, surveillance was extended as necessary to provide adequate coverage.

This report describes the methods and equipment used and summarizes the data collected during the six-month period.

II. OPERATIONAL PROCEDURES

A. Ground Monitoring

Prior to each event, mobile monitoring teams were deployed in the off-site area to locations most likely to be affected by a release of radioactive material. If a release did occur, the teams conducted a ground monitoring program directed from the AEC Control Point headquarters via two-way radio communications. Ground monitoring continued until activity levels essentially returned to background.

Each monitor was equipped with an Eberline E-500B, a Precision Model 111 Standard "Scintillator", and a Victoreen Radector Model No. AGB-50B-SR. The Eberline E-500B has a range of 0 to 200 milliroentgens per hour (mR/hr) beta-gamma detection in four scales with an external halogen filled GM tube and a 0 to 2000 mR/hr range gamma detection from an internal Anton 302 GM tube. The Precision Model 111 Standard "Scintillator" was used primarily as an indicator of the presence of low levels of radioactivity since it provides a range of 0 to 5 mR/hr in six scales. The Radector has a range of 0.05 to 50,000 mR/hr over two logarithmic scales. This instrument has an inert gas ionization chamber as the detector. These instruments are accurate to $\pm$ 20% as calibrated with ^{137}Cs.

B. Exposure Rate Recorders

To supplement the ground monitoring program, Eberline RM-11 expocure rate recorders were utilized to document cloud passage at fixed locations, thereby allowing mobile monitoring teams to

continue following the release as it moved through the off-site area. These recorders have a Geiger tube detector and operate on 110V AC. They have a 0.01 to 100 mR/hr range and are calibrated to ±20% with a ^{137}Cs source. Gamma exposure rate is recorded on a 30-hour strip chart.

C. Aerial Cloud Tracking

An Air Force U3-A aircraft with pilot and two Public Health Service monitors equipped with portable instruments identical to those of the ground monitors was used to track the effluent to assist in positioning ground monitors. Public Health Service cloud sampling aircraft were also used as aids in cloud tracking.

D. Air Sampling

During this six-month period the SWRHL Air Surveillance Network consisted of 108 stations operating in every state west of the Mississippi except Montana and North Dakota. See Figures 1 and 2. The air sampler used in the Air Surveillance Network is a Gelman "Tempest". The "Tempest" Air Sampler consists of a Gast Model 1550 vacuum pump driven by a 1/2 horsepower electric motor. The pump runs at 1440 rpm with an approximate flow rate of 10 cfm. The sampler uses a 4-inch diameter Whatman 541 filter paper. An MSA, Part No. 46727, charcoal cartridge can be added as necessary. The total volume of air sampled is calculated from an average vacuum reading and the total sampling time.

E. Milk and Water Sampling

The previously established milk sampling program from both

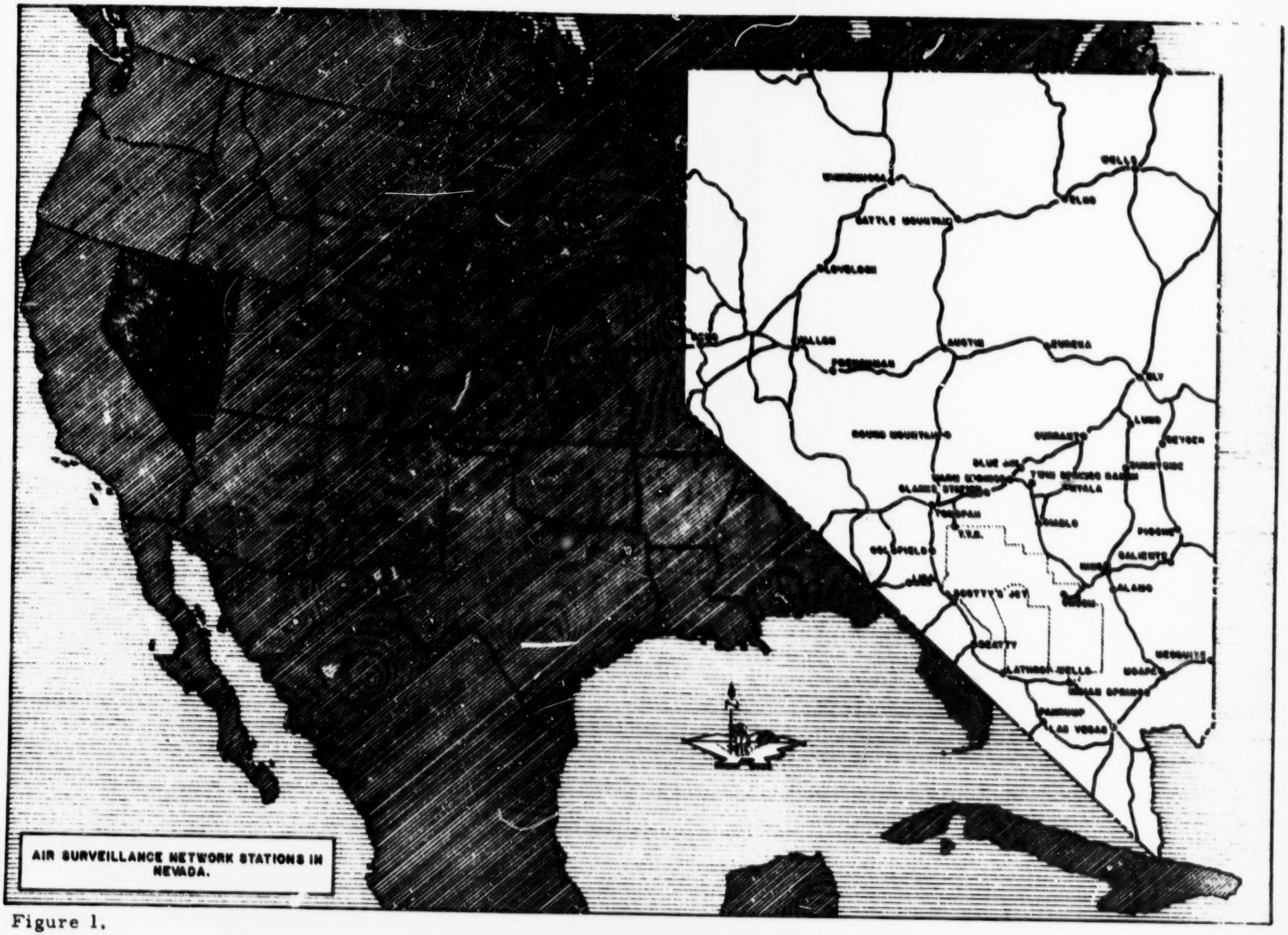

Figure 1.

SEATTLE
SPOKANE
WASHINGTON
OREGON
BURNS
MEDFORD
MONTANA
MISSOULA
BOZEMAN
BILLINGS
IDAHO
BOISE
IDAHO FALLS
MOUNTAIN HOME
TWIN FALLS
POCATELLO
PRESTON
LOGAN
WENDOVER
DUGWAY
SALT LAKE CITY
PROVO
ROOSEVELT
DELTA
GARRISON
MILFORD
RANGELY
DENVER
GRAND JCT
CAPITOL REEF (NATIONAL MON.)
PANGUITCH
CEDAR CITY
ENTERPRISE
ST. GEORGE
BRYCE CANYON
MONTICELLO
DURANGO
PUEBLO
CALIFORNIA
NEVADA
UTAH
COLORADO
WYOMING
WORLAND
CASPER
ROCK SPRINGS
NORTH DAKOTA
ABERDEEN
SOUTH DAKOTA
RAPID CITY
NEBRASKA
NORTH PLATTE
KANSAS
DODGE CITY
MINNESOTA
MINNEAPOLIS
SIOUX CITY
IOWA
IOWA CITY
WISCONSIN
MICHIGAN
ILLINOIS
ST. JOSEPH
ST. LOUIS
MISSOURI
JOPLIN
INDIANA
OHIO
PENNSYLVANIA
NEW YORK
VT.
N.H.
MASS.
CONN.
R.I.
MD.
MAINE
WEST VIRGINIA
KENTUCKY
VIRGINIA
NORTH CAROLINA
TENNESSEE
SOUTH CAROLINA
GEORGIA
ALABAMA
MISSISSIPPI
FLORIDA
LITTLE ROCK
ARKANSAS
MONROE
LOUISIANA
LAKE CHARLES
NEW ORLEANS
MUSKOGEE
OKLAHOMA
NORMAN
AMARILLO
ABILENE
FORT WORTH
AUSTIN
ALBUQUERQUE
NEW MEXICO
CARLSBAD
ARIZONA
PHOENIX
WINSLOW
SELIGMAN
KINGMAN
NEEDLES
SAN BERNARDINO
INDIO
SAN DIEGO
BARSTOW
SILVER LAKE
BAKERSFIELD
RIDGECREST
FURNACE CREEK
DEATH VALLEY JCT.
LONE PINE
BISHOP
FRESNO
BERKELEY
AIR SURVEILLANCE NETWORK STATIONS
OTHER THAN NEVADA
STANDBY SURVEILLANCE STATIONS
N

Figure 2.

commercial dairies and private producers continued throughout the six-month period. See Appendix A. About 30 sources were routinely sampled during this period, many on a monthly basis. A total of 100 samples were collected from these locations. In the event of cloud passage over a specific area, intensified sampling within the area was conducted to document changes in activity.

Water samples were collected on a routine basis. Water sampling is increased when a release occurs; however, because there was only one slight release during this period, only one non-routine sample was collected. Both potable and non-potable water supplies were sampled routinely. During this period 330 water samples were collected from about 70 sources.

F. Vegetation Sampling

Normally, vegetation samples were collected only in the event of a release of radioactive material and analyzed for gross gamma radioactivity to delineate the fallout pattern.

G. Dosimetry

Approximately 150 residents in the off-site area wore film badges throughout this period. These film badges were changed each month and were processed by the Radiological Sciences Department of Reynolds Electrical and Engineering Company, Inc. In addition, 65 film badge stations, each with five badges, were located around the test range complex to provide more complete coverage. These badges were also exchanged monthly. The badge used is made of Du Pont type 555 film. The gamma exposure, as determined from this film, is accurate to $\pm 50\%$ in the 30 to 100 mR range and $\pm 10\%$ in the 100 to 2000 mR range.

Approximately 20 of the 65 stations were each equipped with three CaF_2, EG&G Model TL-12 Thermoluminescent Dosimeters (TLD)

which were exchanged monthly with the film badges. The TLD's have a low energy photon response cutoff at 50 keV and are independent of energy in the range from 50 keV to several MeV. According to past TLD data, a reading at 10 mR above the previous month's background constitutes a detectable exposure.

H. Community Relations

Frequent contacts with the off-site population, schools and civic groups provided the opportunity to explain the role of the Public Health Service in support of the programs of the Atomic Energy Commission. As a result of favorable community relations, a number of off-site residents took part in the environmental sampling program; all routine air sampling stations except Las Vegas were operated by local citizens, and many people volunteered to wear film badge dosimeters.

I. Medical and Veterinarian Services

A Public Health Service medical officer was available in the event any cases of a medical nature arose as a result of the test series. No such cases were brought to the attention of the PHS. Veterinarian services were provided by PHS Veterinarians. Liaison was maintained with livestock producers in the area and the program of wildlife and cattle investigation was continued. Semiannual slaughter of cattle from the NTS herd and the Knoll Creek and Delamar Valley herds was accomplished in cooperation with the University of Nevada. Specimens from these animals were analyzed for radionuclide content.

J. Bioenvironmental Research

Another program of the Southwestern Radiological Health Laboratory

is bioenvironmental research. The mission of this program, in part, is to investigate the inter-relationships among the levels of radionuclide contamination of air, soil, water, vegetation and milk. The results from this program are published in separate reports.

III. ANALYTICAL PROCEDURES

All air sample prefilters and charcoal cartridges were returned to the Southwestern Radiological Health Laboratory in Las Vegas for radiological analyses. Prefilters were counted for gross beta activity in a Beckman "Wide Beta" low background (6 $\pm$ 1 cpm beta) proportional system which has an efficiency of approximately 45% for 0.54 MeV betas. After an initial count, if no significant activity was detected, the prefilters were counted at 5 and 12 days after collection. If significant fission product activity was indicated by the first count, prefilters were recounted a minimum of three times in the first 48 hours following collection. Results are then extrapolated to the end of the collection period by use of a decay constant empirically determined for each individual sample.

Selected prefilters and all charcoal cartridges were analyzed for gamma isotopes by placing them directly on a 4- by 4-inch NaI(Tl) crystal coupled to a TMC Model 404C gamma pulse height analyzer viewing energies from 0 to 2 MeV.

Detection capability of the system as shown in Table 1 is an empirical estimate obtained from previous data collected under the following conditions:

a. Count time in days after fissioning as indicated by footnotes.

b. Prefilters collect unfractionated fission products resulting in a complex spectrum.

c. MSA charcoal predominately collects gaseous fission products (primarily iodines).

d. An eight isotope matrix is employed for computation and isotopes other than those examined are present in amounts which are small relative to those eight.

e. Natural activity on air samples is approximately five times system background.

Table 1. Threshold detectability at time of count of several radionuclides in various samples (90% confidence level).

Sample Type	pCi ^{131}I	^{132}Te-I	^{133}I	^{135}I	^{140}Ba-La	Length of Count	Notes
Whatman No. 541	500	1000	500	1000	500	10 min.	1
	200	--	200	--	200	10 min.	2
MSA Charcoal	200	400	200	400	200	10 min.	1
	100	--	100	--	100	10 min.	2
3.5 liter water* (pCi/l)	20	40-50	20-30	40-50	20	40 min.	4
3.5 liter milk* (pCi/l)	20		20-30		20	40 min.	3

*Counted in 3.5 liter inverted well (Marinelli) aluminum beakers.

1 - counted at less than 3 days after formation.
2 - counted at 3 days or more after formation.
3 - with $^{137}Cs \leq$ 100 pCi/l.
4 - assuming insignificant amounts of other nuclides, and all given isotopes at about detection limits to approximately 10 times the lower limit.

Although the minimum detectable levels for water samples involve the limitations listed in (d) above, the situation is usually simplified by having no background other than that of the system. For a sample containing all of the isotopes of iodine, the error term on threshold values at the 95% confidence level is approximately equal to $\pm$ 50%.

Biological discrimination limits the number of isotopes present in a milk sample. Under normal sampling procedures, this discrimination coupled with the short physical half-life will tend to eliminate ^{132}I and ^{135}I from the sample by the time it is counted. At the 95% confidence level reported values for milk are $\pm$ 10 pCi/l or 10% at

the time of count whichever is greater for a 40-minute count.

After any release of activity from the NTS, milk samples are collected from dairies (processing plants), producing dairy farms, and farms producing milk for their own consumption. Each sample is counted for 40 minutes. No attempt is made to recount samples giving low positive values. The lower limit of detection for gamma emitters in milk samples is 20 picocuries per liter (pCi/l) at the time of count, and all results below that value are reported as < 20 pCi/l.

All liquid samples are counted in 3.8 liter inverted well aluminum beakers which are placed on top of a 4- by 4-inch NaI(Tl) crystal coupled to a 400-channel gamma pulse height analyzer. Overall detection efficiency for the 0.364 MeV photopeak of ^{131}I is 6.4%. A matrix technique is employed to compute the interference due to the presence of other isotopes. The input to this matrix is variable, allowing for the simultaneous determination of any eight nuclides for which detection efficiencies and interference factors have been obtained. Actual computation is performed by an IBM 1620 computer.

Water samples are analyzed for gross beta activity by slowly evaporating an aliquot to dryness in a 2-inch diameter stainless steel planchet and counting the beta activity in a low background counter.

IV. RESULTS

Only one of the ten announced detonations at the Nevada Test Site resulted in a release of radioactive effluent which was detected off-site. This was the Derringer Event of September 12, 1966.

The only positive indication of Derringer effluent off-site was by ground monitoring. Two readings slightly above background were detected. Both radiation intensities were measured on a Model 111 "Scintillator" and were less than twice background. The readings were measured at 1115 PDT at Hancock Summit on Highway 25 and at 1120 PDT, 10 miles southeast of Coyote Summit on Highway 25. Both of these locations are unpopulated. None of the Eberline RM-11 continuous exposure rate recorders located in areas off the Nevada Test Site showed a reading above background.

Thirty air samples were collected for this event. None of these samples showed an increase in gross beta activity and no fresh fission products were detectable on the Whatman 541 filter or the MSA charcoal cartridge. Other samples collected included five milk samples, one water sample, and nine vegetation samples. Short-lived fresh fission products were not detectable in any of these samples.

All milk samples collected during this period are listed in the Appendix. The Project Sterling underground test conducted in Mississippi on December 3, 1966, did not release radioactivity to the atmosphere.

One additional event of interest during this period was the Greeley

Event, an underground nuclear detonation conducted at 0730 hours PST on December 20, 1966, in the Pahute Mesa area of the AEC's Nevada Test Site. Although a release of radioactive effluent was not expected following this detonation, the Public Health Service provided additional personnel for ground motion studies because the Greeley device was of relatively large yield and ground motion was anticipated as far as 75 miles from ground zero.

Seventy-five personnel from the Southwestern Radiological Health Laboratory participated in the surveillance activities for this event. Community information centers were established in Tonopah, Goldfield, Beatty, and Alamo in order to inform the members of these communities of the exact time of the detonation and what degree of motion could be expected. PHS personnel were also available to answer questions in Ely, Caliente, Pioche, and Las Vegas.

All active mines in the vicinity of the Nevada Test Site were located and mining personnel were advised not to be underground at the time of the detonation.

No release of radioactive effluent occurred as a result of this detonation, either initially or in the follow-up operations. No damage to off-site structures from ground motion was reported to any of the community information centers.

V. CONCLUSIONS

Results obtained through environmental radiation surveillance during this period indicate that no individual in the off-site area received an exposure, resulting from Nevada Test Site operations, which exceeded the guides established by the AEC and/or recommended by the FRC and the NCRP.

APPENDIX A

Milk sample results for the six-months period.

Note:

The first line of each sample listing gives the location of the sample source, the identification number assigned to the sample when it arrives at the laboratory, and the date the sample was collected. The remaining lines show the isotopes present in the sample in units of picocuries per liter, except for calcium and potassium which are given in units of grams per liter.

Routinely, analysis is made for the following eight isotopes: ^{144}Ce, ^{131}I, ^{106}Ru, ^{137}Cs, ^{95}Zr, ^{54}Mn, ^{40}K, and ^{140}Ba. These isotopes are listed only when they are present in detectable quantities. When samples are collected for particular events, analysis is generally done for ^{133}I in place of ^{106}Ru.

The isotopes which are processed by radiochemistry methods -- Ca, ^{89}Sr, ^{90}Sr--are listed if radiochemistry is performed.

For values less than a specified minimum sensitivity, the following notations are used:

"B" for values less than 5 pCi/l

"D" for values less than 0.1 pCi/l

Some of the values are listed in exponential form:

3.0E01 = $3.0 \times 10^1 = 30$; 5.5E02 = $5.5 \times 10^2 = 550$, etc.

CALIFORNIA MILK- JULY 01, 1966 TO DECEMBER 30, 1966 COLLECTED

BARSTOW CALIFORNIA HILL DAIRY AM 5102700290491201089 3 07 14 66 7390006
137CS=3.0E01 K=1.4 89SR=8 90SR=2

BARSTOW CALIFORNIA HILLS DAIRY AM 5102700290491301104 7 08 23 66 8390006
137CS=1.0E01 K=1.2 89SR=8 90SR=4

BARSTOW CALIFORNIA HILLS DAIRY AM 5102700290491201119 7 09 15 66 8390006
137CS=5.0E00 K=1.2 89SR=8 90SR=2

BARSTOW CALIFORNIA HILLS DAIRY AM 5102700290491201128 9 10 20 66 8390006
K=1.4 89SR=8 90SR=0.2

BARSTOW CALIFORNIA HILLS DAIRY AM 5102700290491202008 4 11 23 66 8890006
K=1.2 89SR=8 90SR=0.9

BARSTOW CALIFORNIA HILLS DAIRY AM 5102700290491202013 9 12 14 66 8390006
137CS=3.50E01 K=1.0 89SR=8 90SR=0

BIG PINE CALIFORNIA SIMMONS DAIRY AM 5103650270491201089 4 07 15 66 8290022
137CS=2.5E01 K=1.3 89SR=8 90SR=4

BISHOP CALIFORNIA SIERRA FARMS AM 5103700270491301105 3 08 25 66 8290021
137CS=2.0E01 K=1.2 89SR=8 90SR=5

BISHOP CALIFORNIA SIERRA FARMS AM 5103700270491201119 6 09 15 66 8290021
137CS=1.0E01 K=1.3 89SR=8 90SR=8

BISHOP CALIFORNIA SIERRA FARMS AM 5103700270491201130 3 10 19 66 8290021
K=1.3 89SR=8 90SR=3.9

BISHOP CALIFORNIA SIERRA FARMS PM 5103700270491202008 2 11 22 66 8290021
K=1.3 89SR=8 90SR=7.2

NOTE--LT(X) DENOTES A RESULT LESS THAN X.

CALIFORNIA MILK- JULY 01, 1966 TO DECEMBER 30, 1966 COLLECTED

BISHOP CALIFORNIA SIERRA FARMS AM 5103700270491202014012 14 66 8290021
137CS=1.50E01 K=1.4 89SR=8 90SR=7.0

BISHOP CALIFORNIA SIERRA FARMS AM 5103700270491201090407 15 66 8290026
137CS=1.5E01 K=1.3 89SR=5 90SR=6

LONE PINE CALIFORNIA LONE PINE DAIRY AM 5118550270491201089607 14 66 8390023
137CS=4.5E01 K=1.2 89SR=8 90SR=3

LONE PINE CALIFORNIA LONE PINE DAIRY AM 5118550270491201104508 24 66 8390023
137CS=4.0E01 K=1.2 89SR=8 90SR=5

LONE PINE CALIFORNIA LONE PINE DAIRY 5118550270491201119309 15 66 8390023
137CS=8 K=1.2 89SR=8 90SR=3

LONE PINE CALFIORNIA LONE PINE DAIRY AM 5118550270491201131310 20 66 8290023
137CS=5.00E00 K=1.2 89SR=8 90SR=1.4

LONE PINE CALIFORNIA LONE PINE DAIRY PM 5118550270491202008311 22 66 8390023
137CS=1.00E01 K=1.4 89SR=8 90SR=4.0

LONE PINE CALIFORNIA LONE PINE DAIRY AM 5118550270491202013812 14 66 8390023
137CS=5.00E00 K=1.3 89SR=8 90SR=2.8

OLANCHA CALIFORNIA HAYHURST RANCH AM 5123750270491301089007 14 66 6370020
137CS=1.0E01 K=1.3 89SR=5 90SR=1

OLANCHA CALIFORNIA HAYHURST RANCH AM 5123750270491301105108 24 66 6370020
137CS=5.0E00 K=1.4 89SR=8 90SR=3

OLANCHA CALIFORNIA HAYHURST RANCH AM 5123750270491301120009 15 66 6370020
137CS=1.0E01 K=1.3 89SR=8 90SR=4

NOTE--LT(X) DENOTES A RESULT LESS THAN X.

CALIFORNIA MILK- JULY 01, 1966 TO DECEMBER 30, 1966 COLLECTED

OLANCHA CALIFORNIA HAYHURST RANCH AM 5123750270491301132 3 10 20 66 6370020
K=1.3 89SR=8 90SR=1.5

OLANCHA CALIFORNIA AM 5123750270491302008 5 11 23 66 6370020
I31I=5.00E01 137CS=5.00E00 K=1.2 89SR=8
90SR=2.1

OLANCHA CALIFORNIA HAYHURST RANCH AM 5123750270491302013 7 12 14 66 6370020
137CS=1.00E01 K=1.2 89SR=5 90SR=3.8

NOTE--LT(X) DENOTES A RESULT LESS THAN X.

NEVADA MILK-JULY 01, 1966 TO DECEMBER 30, 1966 COLLECTED

ALAMO NEVADA		52014001727912010895 07 14 66 3900049	
137CS=2.5E01	K=1.2	89SR=5	90SR=1
ALAMO NEVADA STEWART DAIRY		AM 51014001727912010900 07 15 66 3900078	
137CS=2.0E01	K=1.3	89SR=5	90SR=2
ALAMO NEVADA STEWART DAIRY		AM 51014001727912011035 08 18 66 8430078	
137CS=1.0E01	K=1.2	89SR=8	90SR=3
ALAMO NEVADA M K STEWART DAIRY		AM 52014001727912011185 09 13 66 3400078	
K=1.6	SR89=8	SR90=3	
ALAMO NEVADA M K STEWART DAIRY		AM 52014001727912011176 09 15 66 3400078	
K=1.5	SR89=8	SR90=2	
ALAMO NEVADA STEWART DAIRY		AM 51014001727912011280 10 13 66 5400078	
GAMMA	SPECTRUM	NEGLIGIBLE	89SR=8
90SR=4.1			
ALAMO NEVADA STEWART DAIRY		AM 51014001727912020043 11 16 66 1400078	
137CS=5.00E00	K=1.2	89SR=8	90SR=4.3
ALAMO NEVADA STEWART DAIRY		AM 51014001727912020161 12 22 66 1400078	
137CS=1.0E01	K=1.5	89SR=8	90SR=2.6
ALAMO NEVADA L LEE DAIRY		AM 52014001727912010851 07 01 66 079	
K=1.3	SR89=5	SR90=12	
ALAMO NEVADA L LEE DAIRY		AM 52014001727912010869 07 07 66	
137CS=2.0E01	K=1.6	SR89=8	SR90=2
ALAMO NEVADA L LEE DAIRY		52014001727912010895 07 14 66 3900079	
137CS=2.5E01	K=1.2	89SR=5	90SR=1

NOTE--LT(X) DENOTES A RESULT LESS THAN X.

NEVADA MILK-JULY 01, 1966 TO DECEMBER 30, 1966

		COLLECTED	
ALAMO NEVADA L LEE DAIRY 137CS=1.0E01 K=1.4	AM 52014001727912010952 07 22 66 89SR=B 90SR=4		079
ALAMO NEVADA L LEE DAIRY 137CS=1.0E01 K=1.3	AM 52014001727912010962 07 27 66 89SR=B 90SR=3		079
ALAMO NEVADA L LEE DAIRY 137CS=1.0E01 K=1.2	AM 52014001727912010966 08 03 66 89SR=B 90SR=2		079
ALAMO NEVADA WRIGHT DAIRY 137CS=1.0E01 K=1.5	AM 51014001727912010932 07 20 66 89SR=B 90SR=1		080
AUSTIN NEVADA YOUNG RANCH 137CS=2.5E01 K=1.3	AM 51018701527913010979 08 04 66 89SR=B 90SR=5		4700010
AUSTIN NEVADA YOUNG RANCH 137CS=5.0E00 K=1.6	PM 51018701527913011111 08 31 66 89SR=B 90SR=7		1700010
AUSTIN NEVADA YOUNG RANCH 137CS=1.5E01 K=1.6	AM 51018701527913011251 09 28 66 89SR=B 90SR=7		4700010
AUSTIN NEVADA YOUNG RANCH 137CS=5.0E00 K=1.5	51018701527913020028 11 03 66 89SR=B 90SR=7.6		1700010
AUSTIN NEVADA YOUNG RANCH 137CS=2.00E01 K=1.4	AM 51018701527913020116 12 01 66 89SR=B 90SR=12.2		0900010
AUSTIN NEVADA GIVENS RANCH 1311=3.0E01 137CS=2.5E01 90SR=9	AM 51018701527913010960 07 21 66 K=1.7 89SR=5		8390071
AUSTIN NEVADA GIVENS RANCH 137CS=3.5E01 K=1.3	AM 51018701527913010980 08 03 66 89SR=B 90SR=12		4300071

NOTE--LT(X) DENOTES A RESULT LESS THAN X.

NEVADA MILK-JULY 01, 1966 TO DECEMBER 30, 1966 COLLECTED

BAKER NEVADA E J CUMMINGS AM 530204033279130108 71 07 05 66 124
K=1.5 SR89=5 SR90=3

BAKER NEVADA BAKER RANCH AM 530204033279130108 28 07 01 66 135
131I=2.0E01 K=1.5 89SR=5 90SR=5

CALIENTE NEVADA YOUNG RANCH PM 510304017279130109 26 07 19 66 067
131I=6.0E01 137CS=1.0E01 K=1.4 89SR=8
90SR=2

CALIENTE NEVADA YOUNG RANCH 510304017279130110 26 08 18 66 1400067
K=1.3 89SR=8 90SR=1

CALIENTE NEVADA YOUNG RANCH PM 510304017279130111 75 09 14 66 1400067
GAMMA SPECTRUM NEGLIGIBLE 89SR=8
90SR=2

CALIENTE NEVADA YOUNG RANCH PM 510304017279130112 72 10 10 66 1400067
137CS=5.0E00 K=1.3 89SR=0 90SR=1.8

CALIENTE NEVADA YOUNG RANCH PM 510304017279130200 44 11 16 66 1400067
K=1.1 89SR=8 90SR=1.1

CALIENTE NEVADA YOUNG RANCH PM 510304017279130201 56 12 21 66 1400067
K=1.3 89SR=8 90SR=2.3

CURRANT NEVADA BLUE EAGLE RANCH 510386023279130110 67 08 24 66 099
137CS=3.5E01 K=1.6 89SR=8 90SR=4

CURRANT NEVADA BLUE EAGLE RANCH 510386023279120232 71 11 21 66 099
137CS=3.5E01 K=1.4 89SR=8 90SR=11.9

CURRANT NEVADA BLUE EAGLE RANCH PM 510386023279130201 87 12 19 66 4930099
137CS=5.5E01 K=1.5 89SR=8 90SR= 0.6

NOTE--LT(X) DENOTES A RESULT LESS THAN X.

NEVADA MILK-JULY 01, 1966 TO DECEMBER 30, 1966

			COLLECTED
DUCKWATER NEVADA HALSTEAD RANCH 137CS=1.5E01 K=1.2		AM 5104800232791301094607 19 66 89SR=5 90SR=7	105
DUCKWATER NEVADA HALSTEAD RANCH 137CS=1.5E01 K=1.7		PM 5104800232791301105208 23 66 4900 89SR=8 90SR=4	105
DUCKWATER NEVADA HALSTEAD RANCH 137CS=5.0E01 K=1.4		PM 5104800232791301123509 20 66 2900 89SR=8 90SR=5	105
DUCKWATER NEVADA HALSTEAD RANCH 137CS=1.00E01 K=1.3		PM 5104800232791301131110 18 66 4900 89SR=8 90SR=1.8	105
DUCKWATER NEVADA BLUE EAGLE RANCH K=1.4 89SR=5.5		PM 5104800232791201128710 19 66 90SR=4.2	105
DUCKWATER NEVADA HALSTEAD RANCH K=1.1 89SR=8		AM 5104800232791302012811 18 66 1200 90SR=4.8	105
DUCKWATER NEVADA HALSTEAD RANCH 103RU=3.0E01 137CS=1.5E01 90SR=5.0		PM 5104800232791302019312 19 66 3200 K=1.4 89SR=8	105
EUREKA NEVADA WILLOWS RANCH 137CS=5.0E00 K=1.4		AM 5105860112791301095907 21 66 8390 89SR=8 90SR=4	003
EUREKA NEVADA WILLOWS RANCH 137CS=1.5E01 K=1.3		AM 5105860112791301097808 04 66 1300 89SR=8 90SR=D	003
EUREKA NEVADA WILLOWS RANCH 137CS=5.0E00 K=1.4		5105860112791301110908 30 66 8390 89SR=8 90SR=4	003
EUREKA NEVADA WILLOWS RANCH 137CS=5.00E00 K=1.3		AM 5105860112791301130110 20 66 8390 89SR=8 90SR=D	003

NOTE--LT(X) DENOTES A RESULT LESS THAN X.

NEVADA MILK-JULY 01, 1966 TO DECEMBER 30, 1966 COLLECTED

HIKO NEVADA DAVIS RANCH AM 52083401727913010870 07 05 66 031
137CS=3.0E01 K=1.5 89SR=5 90SR=3

HIKO NEVADA DAVIS RANCH PM 52083401727913010892 07 12 66 3900031
137CS=3.0E01 140BA=3.0E01 K=1.3 89SR=5
90SR=3

HIKO NEVADA DAVIS RANCH PM 52083401727913010929 07 18 66 031
131I=7.0E01 137CS=2.5E01 K=1.4 89SR=5
90SR=4

HIKO NEVADA DAVIS RANCH PM 52083401727913010961 07 26 66 031
137CS=2.5E01 K=1.4 89SR=B 90SR=4

HIKO NEVADA DAVIS RANCH PM 52083401727913010965 08 03 66 031
137CS=1.0E01 K=1.1 89SR=B 90SR=2

HIKO NEVADA SCHOFIELD DAIRY AM 51083401727912010897 07 14 66 3900057
137CS=1.0E01 K=1.4 89SR=B 90SR=2

HIKO NEVADA SCHOFIELD DAIRY AM 51083401727912011033 08 18 66 3400057
137CS=1.0E01 K=1.3 89SR=B 90SR=2

HIKO NEVADA SCHOFIELD DAIRY AM 52083401727912011189 09 13 66 3900057
137CS=1.0E01 K=1.4 SR89=B SR90=3

HIKO NEVADA SCHOFIELD DAIRY AM 52083401727912011173 09 15 66 3400057
K=1.6 SR89=B SR90=3

HIKO NEVADA SCHOFIELD DAIRY AM 51083401727912011274 10 13 66 5400057
GAMMA SPECTRUM NEGLIGIBLE 89SR=B
90SR=3.0

NOTE-->LT(X) DENOTES A RESULT LESS THAN X.

NEVADA MILK-JULY 01, 1966 TO DECEMBER 30, 1966

		COLLECTED
HIKO NEVADA SCHOFIELD DAIRY 137CS=1.00E01 K=1.3		AM 5108340172791202004911 16 66 1400057 89SR=B 90SR=2.1
HIKO NEVADA SCHOFIELD DAIRY K=1.4 89SR=B		AM 5108340172791202015112 22 66 1400057 90SR=3.5
LAS VEGAS NEVADA ANDERSON DAIRY GAMMA SPECTRUM 90SR=3		AM 5112070032791101088307 06 66 302 NEGLIGIBLE 89SR=B
LAS VEGAS NEVADA ANDERSON DAIRY 137CS=5.00E00 K=1.3		AM 5112070032791102001411 02 66 0000302 89SR=B 90SR=4.5
LAS VEGAS NEVADA ARDEN DAIRY 137CS=5.0E00 K=1.4		AM 5112070032791101086207 06 66 303 89SR=5 90SR=4
LAS VEGAS NEVADA ARDEN DAIRY 137CS=5.00E00 K=1.1		AM 5112070032791102001511 02 66 0000303 89SR=B 90SR=5.0
LATHROP WELLS NEVADA DANSBY RANCH 137CS=1.3E01 K=1.3		5112090232791301106608 30 66 5300065 89SR=5 90SR=1
LATHROP WELLS NEVADA DANSBY RANCH K=1.1 89SR=B		PM 5112090232791302018412 27 66 5300065 90SR=0.3
LOGANDALE NEVADA VEGAS VALLEY DAIRY 137CS=5.0E00 K=1.4		AM 5112520032791201090207 13 66 0000301 89SR=5 90SR=1
LOGANDALE NEVADA VEGAS VALLEY FARMS 137CS=2.0E01 K=1.4		AM 5112520032791201101608 17 66 301 89SR=B 90SR=6
LOGANDALE NEVADA VEGAS VALLEY DAIRY K=1.4 89SR=B		AM 5112520032791201114309 09 66 0000301 90SR=4

NOTE--LT(X) DENOTES A RESULT LESS THAN X.

NEVADA MILK-JULY 01, 1966 TO DECEMBER 30, 1966 COLLECTED

LOGANDALE NEVADA VEGAS VALLEY FARMS		AM 51125200327911011336 10 25 66	0000301
137CS=1.0E01	K=1.3	89SR=B	90SR=4.6
LOGANDALE NEVADA VEGAS VALLEY FARMS		AM 51125200327912020086 11 28 66	0000301
137CS=5.00E00	K=1.2	89SR=B	90SR=2.6
LOGANDALE NEVADA VEGAS VALLEY DAIRY		AM 51125200327912020163 12 29 66	0001301
137CS=1.5E01	K=1.3	89SR=B	90SR=1.7
LUND NEVADA		51128503327912023469 12 22 66	009
137CS=1.0E01	K=1.3	89SR=B	90SR=2.8
LUND NEVADA MCKENZIE DAIRY		51128503327912010873 07 08 66	077
137CS=2.5E01	K=1.5	89SR=B	90SR=3
LUND NEVADA MCKENZIE DAIRY		51128503327912010889 07 14 66	077
137CS=2.0E01	K=1.5	89SR=5	90SR=5
LUND NEVADA MCKENZIE DAIRY		51128503327912010958 07 22 66	077
137CS=1.0E01	K=1.4	89SR=B	90SR=3
LUND NEVADA MCKENZIE DAIRY		51128503327912010963 07 29 66	077
GAMMA	SPECTRUM	NEGLIGIBLE	89SR=B
90SR=2			
LUND NEVADA MCKENZIE DAIRY		51128503327912010993 08 08 66	077
137CS=1.0E01	K=1.3	89SR=B	90SR=3
LUND NEVADA MCKENZIE DAIRY		51128503327912011039 08 18 66	077
137CS=2.0E01	K=1.2	89SR=B	90SR=4
LUND NEVADA MCKENZIE DAIRY		51128503327912011065 08 30 66	077
137CS=5.0E00	K=1.4	89SR=B	90SR=4

NOTE--LT(X) DENOTES A RESULT LESS THAN X.

NEVADA MILK-JULY 01, 1966 TO DECEMBER 30, 1966

	COLLECTED	
LUND NEVADA MCKENZIE DAIRY 137CS=2.5E01 K=1.4	51128503327912011116 09 05 66 89SR=B 90SR=3	077
LUND NEVADA MCKENZIE DAIRY 137CS=5.00E00 K=1.4	51128503327912011147 09 12 66 89SR=B 90SR=4	077
LUND NEVADA MCKENZIE DAIRY 137CS=1.5E01 K=1.3	51128503327912011190 09 17 66 89SR=15 90SR=3	077
LUND NEVADA MCKENZIE DAIRY 137CS=1.5E01 K=1.4	51128503327912011242 09 30 66 89SR=B 90SR=3	077
LUND NEVADA MCKENZIE DAIRY 137CS=1.0E01 K=1.5	51128503327912011268 10 06 66 89SR=B 90SR=2	077
LUND NEVADA MCKENZIE DAIRY 137CS=1.00E01 K=1.4	51128503327912011286 10 19 66 89SR=B 90SR=3.6	077
LUND NEVADA MCKENZIE DAIRY 137CS=5.0E00 K=1.2	51128503327912011335 10 26 66 89SR=B 90SR=4.0	077
LUND NEVADA MCKENZIE DAIRY 137CS=5.0E00 K=1.3	51128503327911023111 11 07 66 89SR=B 90SR=3.8	077
LUND NEVADA MCKENZIE DAIRY K=1.4 89SR=B	51128503327912023247 11 16 66 90SR=2.8	077
LUND NEVADA MCKENZIE DAIRY K=1.3 89SR=B	51128503327912023310 11 29 66 90SR=4.7	077
LUND NEVADA MCKENZIE DAIRY I37CS=5.0E00 K=1.3	51128503327911023394 12 12 66 89SR=B 90SR=3.1	077

NOTE--LT(X) DENOTES A RESULT LESS THAN X.

NEVADA MILK-JULY 01, 1966 TO DECEMBER 30, 1966 COLLECTED

LUND NEVADA MCKENZIE DAIRY		5112850332791202350	7 12 30 66	077
K=1.3	89SR=1	90SR=1.8		
MANHATTEN NEVADA PEAVINE RANCH	PM	5113050232791301[illegible]077	08 03 66	4700002
137CS=1.5E01	K=1.4	89SR=B	90SR=2	
MANHATTEN NEVADA PEAVINE RANCH	AM	5113050232791301110[illegible]	08 31 66	6390002
137CS=5.0E00	K=1.3	89SR=B	90SR=3	
MANHATTEN NEVADA PEAVINE RANCH	PM	5113050232791301125[illegible]	09 27 66	6390002
137CS=1.0E01	K=1.2	89SR=B	90SR=4	
MANHATTEN NEVADA PEAVINE RANCH		5113050232791302002[illegible]	11 03 66	6200002
137CS=5.0E00	K=1.2	89SR=B	90SR=2.9	
MESQUITE NEVADA HUGHES BROS DAIRY	AM	5113160032791201089[illegible]	07 13 66	6410062
137CS=1.5E01	K=1.4	89SR=B	90SR=5	
MESQUITE NEVADA HUGHES BROS DAIRY	AM	5113160032791201101[illegible]	08 17 66	062
137CS=5.0E00	K=1.3	89SR=B	90SR=3	
MESQUITE NEVADA HUGHES BROS DAIRY		5113160032791201114[illegible]	09 07 66	6490062
K=1.5	89SR=B	90SR=2		
MESQUITE NEVADA HUGHES BROS DAIRY	AM	5113160032791201133[illegible]	10 26 66	6990062
K=1.2	89SR=B	90SR=2.0		
MESQUITE NEVADA HUGHES BROS DAIRY	PM	5113160032791202010[illegible]	11 30 66	5910062
137CS=5.0E00	K=1.3	89SR=B	90SR=4.7	
MESQUITE NEVADA HUGHES BROS DAIRY	AM	5113160032791202014[illegible]	12 18 66	9090062
137CS=1.00E01	K=1.5	89SR=B	90SR=1.6	

NOTE--LT(X) DENOTES A RESULT LESS THAN X.

NEVADA MILK-JULY 01, 1966 TO DECEMBER 30, 1966

		COLLECTED
MOAPA NEVADA SEARLES DAIRY 137CS=1.0E01 K=1.0	AM 51135000327912010927 07 20 66 89SR=8 90SR=3	071
MOAPA NEVADA SEARLES DAIRY 137CS=2.0E01 K=1.2	AM 51135000327912011030 08 19 66 89SR=8 90SR=3	5900071
MOAPA NEVADA SEARLES RANCH 137CS=2.0E01 K=1.2	AM 51135000327913011342 10 28 66 89SR=8 90SR=3.1	1400071
NYALA NEVADA SHARP RANCH 137CS=6.5E01 K=1.2	AM 51149002327913010901 07 14 66 89SR=8 90SR=11	2300054
NYALA NEVADA SHARP RANCH 137CS=5.0E01 K=1.2	AM 51149002327913010995 08 10 66 89SR=8 90SR=8	4300054
NYALA NEVADA SHARP RANCH 137CS=1.5E01 K=1.5	AM 52149002327913011172 09 15 66 SR89=8 SR90=8	054
NYALA NEVADA SHARP RANCH 137CS=5.0E01 K=1.6	PM 51149002327913011262 10 05 66 89SR=8 90SR=11	054
NYALA NEVADA SHARP RANCH 131I=1.00E01 137CS=4.50E01 90SR=7.2	AM 51149002327913020136 12 07 66 K=1.3 89SR=8	1300054
PAHRUMP NEVADA ISHMAEL RANCH K=1.3 89SR=8	AM 51160202327913020185 12 30 66 90SR=2.5	5300076
PIOCHE NEVADA HORLACHER RANCH 137CS=2.0E01 K=1.2	AM 51163502327913010899 07 14 66 89SR=10 90SR=4	1900075
PIOCHE NEVADA HORLACHER RANCH 137CS=3.0E01 K=1.4	AM 51163501727913011029 08 17 66 89SR=8 90SR=5	1400075

NOTE--LT(X) DENOTES A RESULT LESS THAN X.

NEVADA MILK-JULY 01, 1966 TO DECEMBER 30, 1966 COLLECTED

PIOCHE NEVADA HORLACHER RANCH AM 5116350172791301127 3 10 12 66 1400075
137CS=1.5 K=1.0 89SR=B 90SR=4.4

PIOCHE NEVADA HORLACHER RANCH AM 5116350172791302005 1 11 16 66 1400075
137CS=5.00E00 K=1.10 89SR=B 90SR=8.3

PIOCHE NEVADA HORLACHER RANCH AM 5116350172791302015 4 12 23 66 1400075
137CS=2.5E01 K=1.4 89SR=6 90SR=4.8

PIOCHE NEVADA HORLACHER RANCH AM 5116350172791301118 7 09 14 66 0751400
137CS=2.0E00 K=1.3 89SR=B 90SR=6

SHOSHONE NEVADA KIRKEBY RANCH 5119250032791301095 6 07 23 66 106
1311=6.0E01 137CS=2.5E01 K=1.6 89SR=B
90SR=10

SHOSHONE NEVADA KIRKEBY RANCH AM 5119250032791301123 4 09 22 66 1300106
137CS=1.5E01 K=1.5 89SR=B 90SR=4

SHOSHONE NEVADA KIRKEBY RANCH AM 5119250032791301132 8 10 20 66 1900106
137CS=1.00E01 K=1.3 89SR=B 90SR=1.5

SHOSHONE NEVADA KIRKEBY RANCH 5119250032791302012 6 11 17 66 0900106
K=1.1 89SR=B 90SR=1.5

SHOSHONE NEVADA KIRKEBY RANCH AM 5319250032791301083 1 07 01 66 144
137CS=5.0E01 K=1.7 SR89=B SR90=9

SPRINGDALE NEVADA PEACOCK RANCH AM 5119640232791302007 3 11 16 66 5700174
K=1.3 89SR=5 90SR=1.5

TONOPAH NEVADA SHARPS RANCH AM 5120550232791301114 5 09 08 66 5430131
K=1.5 89SR=B 90SR=15

NOTE--LT(X) DENOTES A RESULT LESS THAN X.

NEVADA MILK-JULY 01, 1966 TO DECEMBER 30, 1966 COLLECTED

WINNEMUCCA NEVADA PM 51233501327912023184 11 10 66
K=1.1 89SR=B 90SR=2.9

WINNEMUCCA NEVADA PM 51233501327912023180 11 08 66
K=1.2 89SR=B 90SR=4.7

WINNEMUCCA NEVADA P MARCUERQUIAGO 51233501327912023183 11 09 66
137CS=2.5E01 K=1.3 89SR=B 90SR=5.4

WINNEMUCCA NEVADA 3V DAIRY 51233501327912023182 11 10 66
K=1.2 89SR=B 90SR=3.6

NOTE--LT(X) DENOTES A RESULT LESS THAN X.

UTAH MILK-JULY 01, 1966 TO DECEMBER 30, 1966 COLLECTED

GARRISON UTAH GONDERS RANCH	PM 5107060274381301 1232 09 20 66 1900006	
137CS=1.5E01 K=1.5	89SR=8	90SR=7
GARRISON UTAH GONDERS RANCH	PM 5107060274381301 1332 10 19 66 1900006	
137CS=1.50E01 K=1.5	89SR=8	90SR=1.9
GARRISON UTAH GONDERS RANCH	PM 5107060274381302 0127 11 17 66 1900006	
137CS=1.50E01 K=1.4	89SR=8	90SR=5.5
NEW CASTLE UTAH NEW CASTLE DAIRY	AM 5114180214381201 0903 07 14 66 6410001	
137CS=1.0E01 K=1.4	89SR=5	90SR=4
NEW CASTLE UTAH NEW CASTLE DAIRY	AM 5114180214381201 1017 08 17 66 001	
137CS=1.0E01 K=1.2	89SR=8	90SR=5
NEW CASTLE UTAH NEW CASTLE DAIRY	AM 5114180214381201 1142 09 08 66 6470001	
137CS=10 K=1.4	89SR=8	90SR=3
NEW CASTLE UTAH NEW CASTLE DAIRY	AM 5114180214381201 1338 10 26 66 9990001	
137CS=1.0E01 K=1.3	89SR=8	90SR=4.6
NEW CASTLE UTAH NEW CASTLE DAIRY	5114180214381202 0101 12 01 66 0010001	
137CS=1.00E01 K=1.2	89SR=8	90SR=4.1
NEW CASTLE UTAH NEW CASTLE DAIRY	AM 5114180214381202 0145 12 17 66 6470001	
137CS=5.0E00 K=1.2	89SR=8	90SR=2.3
MT PLEASANT UTAH BROOKLAWN CREAMERY	AM 5313580394381201 0859 07 01 66 264	
137CS=2.0E01 K=1.6	SR89=10	SR90=9
MT PLEASANT UTAH BROOKLAWN CREAMERY	AM 5313580394381201 0860 07 02 66 264	
K=1.4 SR89=10	SR90=12	

NOTE--LT(X) DENOTES A RESULT LESS THAN X.

UTAH MILK-JULY 01, 1966 TO DECEMBER 30, 1966

		COLLECTED
MT PLEASANT UTAH BROOKLAWN CREAMERY K=1.4 89SR=15	AM 5313580394381201O868 07 03 66 90SR=9	264
MT PLEASANT UTAH BROOKLAWN CREAMERY K=1.3 89SR=15	AM 5313580394381201O867 07 04 66 90SR=10	264
MT PLEASANT UTAH BROOKLAWN CREAMERY 137CS=2.0E01 K=1.3	AM 5313580394381201O864 07 05 66 SR89=10 SR90=11	264
OGDEN UTAH MAPLE LEAF DAIRY 137CS=2.0E01 K=1.1	AM 5315210574381201O857 07 01 66 SR89=5 SR90=10	262
OGDEN UTAH MAPLE LEAF DAIRY K=1.4 SR89=8	AM 5315210574381201O856 07 02 66 SR90=12	262
OGDEN UTAH MAPLE LEAF DAIRY K=1.6 89SR=5	5315210574381201O863 07 05 66 90SR=9	262
OGDEN UTAH MAPLE LEAF DAIRY 137CS=2.0E01 K=1.5	AM 5315210574381201O865 07 06 66 89SR=8 90SR=10	262
ST GEORGE UTAH COX DAIRY 137CS=1.5E01 K=1.4	AM 5119000534381201O898 07 15 66 89SR=8 90SR=4	4414001
ST GEORGE UTAH COX DAIRY 137CS=1.0E01 K=1.4	5119000534381201O964 07 29 66 89SR=5 90SR=5	001
ST GEORGE UTAH COX DAIRY 137CS=5.0E00 K=1.4	5119000534381201O976 08 06 66 89SR=8 90SR=3	001
ST GEORGE UTAH COX DAIRY 137CS=1.0E01 K=1.3	5119000534381201O994 08 12 66 89SR=8 90SR=5	001

NOTE--LT(X) DENOTES A RESULT LESS THAN X.

UTAH MILK-JULY 01, 1966 TO DECEMBER 30, 1966 COLLECTED

ST GEORGE UTAH COX DAIRY		5119000534381201 1040 08 19 66		001
137CS=1.0E01	K=1.3	89SR=B	90SR=5	
ST GEORGE UTAH COX DAIRY		5119000534381101 1044 08 26 66		001
137CS=1.5E01	K=1.3	89SR=B	90SR=3	
ST GEORGE UTAH COX DAIRY		5119000534381201 1101 09 02 66		8400001
137CS=1.5E01	K=1.3	89SR=B	90SR=3	
ST GEORGE UTAH COX DAIRY		AM 5119000534381201 1146 09 12 66		6494001
K=1.2	89SR=B	90SR=8		
ST GEORGE UTAH COX DAIRY		5119000534381201 1243 09 30 66		001
K=1.3	89SR=B	90SR=6		
ST GEORGE UTAH COX DAIRY		5119000534381201 1267 10 07 66		001
137CS=1.5E01	K=1.3	89SR=B	90SR=6	
ST GEORGE UTAH COX DAIRY		5119000534381201 1288 10 21 66		001
K=1.3	89SR=B	90SR=3.2		
ST GEORGE UTAH COX DAIRY		5119000534381201 1339 10 28 66		001
137CS=5.0E00	K=1.3	89SR=B	90SR=4.0	
ST GEORGE UTAH COX DAIRY		5119000534381202 3293 11 25 66		001
137CS=1.00E01	K=1.4	89SR=B	90SR=3.9	
ST GEORGE UTAH COX DAIRY		5119000534381202 3415 12 16 66		001
137CS=5.0E00	K=1.4	89SR=B	90SR=4.0	
ST GEORGE UTAH COX DAIRY		5119000534381102 3475 12 23 66		001
137CS=1.0E01	K=1.4	89SR=2	90SR=3.2	

NOTE--LT(X) DENOTES A RESULT LESS THAN X.

UTAH MILK-JULY 01, 1966 TO DECEMBER 30, 1966 COLLECTED

ST GEORGE UTAH 137CS=1.5E01	K=1.3	51190005343812010854 07 01 66 89SR=5 90SR=3	004
ST GEORGE UTAH 137CS=1.5E01	K=1.1	51190005343812010957 07 22 66 89SR=8 90SR=5	004
ST GEORGE UTAH COX DAIRY 137CS=2.5E01	K=1.3	51190005343812011191 09 16 66 89SR=8 90SR=6	004
ST GEORGE UTAH COX DAIRY 137CS=1.0E01	K=1.2	51190005343812011231 09 23 66 89SR=8 90SR=4	004
ST GEORGE UTAH 137CS=5.0E00	K=1.4	51190005343811011285 10 14 66 89SR=8 90SR=3.5	004
ST GEORGE UTAH 137CS=1.0E01	K=1.3	51190005343811023025 11 03 66 89SR=8 90SR=3.9	004
ST GEORGE UTAH 137CS=1.5E01	K=1.4	51190005343811023198 11 11 66 89SR=8 90SR=5.4	004
ST GEORGE UTAH 137CS=1.00E01	K=1.3	51190005343811023262 11 18 66 89SR=8 90SR=3.7	004
ST GEORGE UTAH 137CS=1.00E01	K=1.3	51190005343811023325 12 02 66 89SR=8 90SR=2.5	004
ST GEORGE UTAH 137CS=1.00E01	K=1.4	51190005343812023366 12 09 66 89SR=8 90SR=3.5	004
ST GEORGE UTAH 137CS=1.0E01	K=1.4	51190005343812023505 12 30 66 89SR=8 90SR=4.3	004

NOTE--LT(X) DENOTES A RESULT LESS THAN X.

UTAH MILK-JULY 01, 1966 TO DECEMBER 30, 1966 COLLECTED

SMITHFIELD UTAH			53194300543812010875 07 05 66		
K=1.6	89SR=10		90SR=11		
SMITHFIELD UTAH			53194300543812010876 07 06 66		
137CS=5.0E00	K=1.6		89SR=5	90SR=11	
SMITHFIELD UTAH			53194300543812010874 07 07 66		
137CS=1.0E01	K=1.6		SR89=5	SR90=11	
SMITHFIELD UTAH CACHE VALLEY DAIRY		AM	53194300543812010866 07 01 66		261
137CS=3.0E01	K=1.5		SR89=8	SR90=13	
SMITHFIELD UTAH CACHE VALLEY DAIRY		AM	53194300543812010861 07 02 66		261
137CS=2.5E01	K=1.4		SR89=15	SR90=10	

NOTE--LT(X) DENOTES A RESULT LESS THAN X.